

NECROLOGY

William C(arl) Beaver, Professor Emeritus of Biology, Wittenberg University, Springfield, Ohio, died on August 28, 1970, at the age of 73 years. He was born December 29, 1896, in Whipple, Ohio, and was married in 1921. He received the A.B. degree from Marietta College in 1919, the M.S. from The Ohio State University in 1920, and the Ph.D. in bacteriology in 1928 from the same university.

Dr. Beaver was instructor of biology at Marietta College during 1920-21, assistant professor of biology at Lafayette College during 1921-23, and Professor of Biology at Wittenberg from 1923, becoming Professor Emeritus in 1968. During World War I he was in the service of the federal government during 1917-19.

Dr. Beaver was accorded the honorary degree of Doctor of Science by Marietta College in 1955. He held memberships in the American Association for the Advancement of Science, the Public Health Association, the Society of Professional Biologists, and the Association of Biological Teachers. His fields of interest included bacteriology, zoology, ichthyology, and the role of bacteria in subaquatic soils.

The eighth edition of Dr. Beaver's text book, *The Science of Biology*, was published by the C. V. Mosby Company in the spring of 1970 and was available for distribution in June. This text has been widely used in the United States and in Great Britain.

Dr. Beaver was a member of Section A of The Ohio Academy of Science from 1924. He was elected fellow in 1930, was vice president of Section A in 1947, and became Emeritus in 1968. He is survived by his wife, Mary M. Beaver.

E(mma) Lucy Braun, Professor Emeritus of Plant Ecology, University of Cincinnati, died March 5, 1971, aged 82 years. She was born in Cincinnati, Ohio, on April 19, 1889.

She received the A.B. degree in 1910, the M.A. (geology) in 1912, and the Ph.D. (botany) in 1914, all three degrees being conferred by the University of Cincinnati. She was an assistant in geology at the University of Cincinnati during 1910-13; then, in botany at the same institution, she was assistant during 1914-17, instructor during 1917-23, assistant professor during 1923-27, associate professor during 1927-46, and Professor of Plant Ecology during 1946-48, becoming Professor Emeritus in 1948.

The early papers of the young Dr. Braun show the direction her research interests would take: *The Physiography of the Cincinnati Region*, published in 1916, and *The Vegetation of the Mineral Springs Region of Adams County, Ohio*, published in 1928. By 1937, Dr. Braun had looked at the trees about her well enough so that she could publish *A Key to the Deciduous Trees of Ohio, Native and Planted, in Winter Condition*.

Dr. Braun became a member of Section B of The Ohio Academy of Science in 1920 and fellow in 1921, and was president in 1933. Long afterward (1963) she was made an Honorary Life Member. Dr. Braun was also a member of the Ecological Society of America. In 1935 she was elected vice president of this society, and in 1950 she became president.

She received a Guggenheim Fellowship in 1943 for the study of the ecology and species composition of the eastern deciduous forest, a fellowship that was renewed in 1944. The results of this study, the *Deciduous Forests of Eastern North America*, appeared in book form in 1950, which is considered an authoritative work on the origin and structure of the forests of the area. Dr. Braun had spent 25 years in study, preparing to write the book, and had traveled some 65,000 miles collecting data and seeing for herself how it was. She had cooperated with the forest soils subsection of the Soil Science Society of America and with the United States Forest Service. In the meantime she retired from the University in 1948 and she was free to write the book.

Honors began to come. Dr. Braun received the Mary Soper Pope Medal, a reward of merit in the field of botany, given by the Cranbrook Institute of Sciences, Bloomfield Hills, Michigan, in 1952. In 1953, she was made an Honorary Life Member of the Cincinnati Wild Flower Preservation Society, which she had founded in 1917. Another of Dr. Braun's papers, *The Phytography of Unglaciated Eastern United States and its Interpretation*, appeared in 1955. Following this came more recognition when, in 1956, Dr. Braun was one of 50 american botanists to receive a Certificate of Merit from the Botanical Society of America. In 1961, she was again cited as one of 69 distinguished american botanists by the same Botanical Society.

Her next book, *The Woody Plants of Ohio, Trees, Shrubs, and Woody Climbers, Native, Naturalized and Escaped*, appeared in 1961. This work was listed by Dr. Braun as a contribution to the vascular flora of Ohio, and it was done with the aid of a grant from the National Science Foundation.

In 1964, Dr. Braun received an honorary Doctor of Science degree from the University of Cincinnati. The next year she was subsidized by the National Science Foundation to study the vegetation of the Fort Hill State Memorial. In 1965, the Ohio Chapter of The Nature Conservancy named the recently purchased Lynx Prairie of Adams County, Ohio, in her honor—the *E. Lucy Braun Lynx Prairie Preserve*. Dr. Braun had been instrumental in saving this prairie originally, on behalf of the Cincinnati Museum of Natural History.

In 1967, Dr. Braun's latest book appeared. It was *The Monocotyledonae, Cat-tails to Or-*

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chids, in which the section on the *Graminaceae* was prepared by Dr. Clara G. Weishaupt, and the original drawings were made by Elizabeth Dalvé and Elizabeth King. This work was supported by The National Science Foundation and represents Volume I of the series on the *Vascular Flora of Ohio*. Her final publication was *An Ecological Survey of the Vegetation of Fort Hill State Memorial, Highland County, Ohio*, which was published only recently.

During the years, E. Lucy Braun also found time to edit the *Wild Flower Magazine*, *Botany*, and *The Naturalist's Guide to the Americas*. She would have been happy to continue the study of the flora about her, but the end had come. We who knew her along the way remember her with admiration and kind regard.

Dr. Braun was a member of the American Association for the Advancement of Science, the Ecological Society of America, the Botanical Society of America, the American Society of Plant Taxonomists, and the British Ecological Society. Her fields of interest included forest ecology, geographic distribution of plants, and taxonomy of vascular plants.

Dr. Braun is survived by her sister, Dr. Annette Braun, an entomologist.

Kenneth C(harles) Cottingham, Consulting Geologist with the Ohio Fuel Gas Company, died on February 7, 1971, aged 78 years. He was born in Columbus, Ohio, on April 29, 1892, and was married in 1921. He received the A.B. degree in 1913 and the A.M. in 1914, both from The Ohio State University. He was instructor of geology at The Ohio State University during 1914–17, consulting geologist in Dallas and New York during 1919–20, geologist with the Union Oil Corporation during 1920–21, and geological engineer in 1922. He became geologist with the Ohio Fuel Gas Company in 1923, engineer with the Columbia Gas and Electric Corporation in 1926, geologist and engineer with the Columbia Engineering and Management Corporation in 1929, and then Chief Geologist with the Ohio Fuel Gas Company in 1939, a company for whom, at his retirement in 1957, he became Consulting Geologist.

Mr. Cottingham was a member and fellow of the American Association for the Advancement of Science, the Geological Society of America, and The Ohio Academy of Science. He joined the Academy in 1914 and was elected fellow in 1929; he was affiliated with Section C, of which he was vice president in 1947. Mr. Cottingham was also a member of the American Institute of Mining Engineers, the American Association of Petroleum Geologists, the American Petroleum Institute, and the American Gas Association.

He served on many committees in the above societies and contributed to the literature in his field. He helped to found the Committee on Natural Gas Reserves of the American Gas Association, and the Committee on Exploratory Drilling of the American Association of Petroleum Geologists, committees on which he served until his retirement.

Mr. Cottingham was also a Registered Professional Engineer in Ohio, in the Branch of mining, and was a member of Sigma Xi. He was a man of high standards, who lived up to them, and he was held in high regard by all who worked with him.

He was a member of the Ohio Historical Society and of the Great Lakes Historical Society. He served as instructor and officer in the Army Air Corps in World War I and was a member of Columbus Post 82 of the American Legion.

He is survived by his wife, Lucile, and a daughter, Marjorie (Mrs. Carl Obenauf), of Chicago, Illinois.

Ollie Edgar Fink, educator, conservationist, co-founder of Friends of the Land and long-time Executive Secretary of that organization, died on February 28, 1970, at the age of 71 years. He was born in Irville, Ohio, on July 30, 1898.

Mr. Fink was a student in S. A. T. C. military training program in 1918. He received the A.B. degree from Muskingum College in 1922. After his marriage in 1925 and a few years of high school teaching, he received the M.A. degree from The Ohio State University in 1934. He continued intermittently as a graduate student in the College of Education of that university from 1934 to 1941, during much of which period (1929–1938) he was principal in the Hancock Junior High School of Zanesville, Ohio. He was Conservation Supervisor in the schools of the town during 1938–1939, and Curriculum Supervisor of Conservation Education for the State Department of Education of Ohio during 1939–1944. He was Director of the Ohio Conservation Laboratory at Tar Hollow, near Leesville, during 1940–1945.

Mr. Fink was co-founder of Friends of the Land, together with Louis Bromfield of Mansfield and Dr. Johnathan Foreman of Columbus. He was Executive Secretary of the Society during 1944–1962, serving from his home at Hidden Acres Farm, Route 2, Zanesville, Ohio. He was co-author with Dr. Foreman of the book, *Water and Man* (1945), and of *Soil, Food and Health* (1948). He was long-time editor of *Land and Water*, the quarterly journal of the Society. With Homer Royer, he wrote *Buckeye Tales*, a book for children, in 1945. His writings include *The Teacher Looks at Conservation*, and *Conservation for Tomorrow's America*.

Mr. Fink's years of study and concern for the many facets of conservation, his teaching experience, and his native ability combined to make of him a national lecturer—in person and on television and radio—on the subject of conservation. He served in this capacity throughout the nation for over twenty-five years. One reward of his many services was his listing in *Who's Who in America* after 1948.

Mr. Fink was member and fellow of the American Geographic Society and of Section J of The Ohio Academy of Science, which he joined in 1952 and in which he was elected a fellow in

1961. He was Chairman of the Conservation Committee of the Junior Chamber of Commerce during 1936-37. His other memberships included Phi Delta Kappa, the Masonic Lodge, and the Torch Club International. He was a member and past president of the Pioneer and Historical Society of Muskingum County, which was his home county. He returned to teaching in the Grover Cleveland High School of Zanesville during 1959-64. He will long be remembered there by his many students and friends and especially by the "problem boys" whom he helped. He is listed in *Who's Who in American Education*.

Mr. Fink is survived by his wife, Julia Leffler Fink, his daughter, Ruth Joan (Mrs. Raymond Jennings), and his son, David Edgar, and two grandchildren.

Lester O(dell) Gilmore, Associate Chairman of the Dairy Science Department of the Ohio Agricultural Research and Development Center, died August 21, 1970, at the age of 60. He was born on March 3, 1910, in Freeborn, Minnesota. He received the B.S. degree in agricultural biochemistry from the University of Minnesota in 1932, the M.S. in dairy husbandry from Kansas State University in 1933, and the Ph.D. in dairy husbandry from the University of Minnesota in 1939.

He was agricultural agent for the Minnesota Extension Service during 1933-35, graduate assistant and then instructor in dairy husbandry at the University of Minnesota during 1935-37, and then assistant county agent, stationed in Minneapolis, during 1937-39. He became associate professor and extension dairyman at Kansas State University in 1939, where he remained until 1942, when he returned to the Department of Dairy Husbandry at the University of Minnesota as assistant professor, becoming associate professor in 1945 until 1948. While at the University of Minnesota, he and his associates were the first in the country to breed cattle artificially. Later he reported a classic study upon the inheritance of lethal characters in dairy cattle.

Dr. Gilmore came to The Ohio State University as associate professor of Dairy Science in charge of livestock in 1948, becoming Professor in 1950. He then became Associate Chairman in Dairy Science at the Ohio Agricultural Research and Development Center in 1952, and has been a member of that staff since that time. He became Acting Chairman of the Department of Dairy Science in 1963 and served in that capacity for eight months.

Dr. Gilmore developed a new course in research methods and techniques and directed graduate students. It was at this time that he introduced the use of identical twins in dairy science research.

Dr. Gilmore was a member of the American Association for the Advancement of Science, the Society of Animal Science, the Society of Human Genetics, and the Dairy Science Association. His major interest was in the management, breeding, and genetics of dairy cattle.

Dr. Gilmore joined Section K of The Ohio Academy of Science in 1957. He was elected fellow in 1960 and was vice president of his section in 1961.

He was married in 1941 and was the father of four children.

Freeman S(mith) Howlett, Professor and Chairman Emeritus, Department of Horticulture and Forestry, The Ohio State University, and Department of Horticulture, the Ohio Agricultural Research and Development Center, died November 17, 1970, aged 70 years. He was born in Jordanville, N. Y., on June 15, 1900, and was married in 1925.

Dr. Howlett received the B.S. degree from Cornell University in 1921 and the Ph.D. in pomology from the same institution in 1925. He served as assistant in pomology at Cornell during 1920-21, and was also instructor of agricultural economics and farm management in 1921, and instructed in pomology during 1922-24.

In 1929, Dr. Howlett came to the Ohio Agricultural Experiment Station as assistant horticulturist and to The Ohio State University as assistant professor of horticulture. He became associate horticulturist and associate professor in the two institutions in 1937, professor in 1941, and Chairman of the two departments in 1947. He became Professor Emeritus in each on June 30, 1970. He had received the honorary degree of Doctor of Science from Wooster College in 1968.

Dr. Howlett's research interests were broad, ranging from apple breeding and rootstocks for apples and pears to vegetable culture in greenhouses and plant nutrition. He was primarily responsible for the development and use of foliar analysis as a tool for the determination of the nutritional requirements of horticultural crops. During more than thirty years' work in apple breeding, he developed and named five new apple cultivars: Melrose, Franklin, Ruby, Holiday, and Holly. During his career he published nearly 300 papers and was well known for the standard text, *Modern Fruit Production*, which he co-authored and which has been translated into many languages. He was a frequent contributor to a number of encyclopedias.

Dr. Howlett was a member and fellow of the Royal Horticultural Society of England, the American Association for the Advancement of Science, and the American Society for Horticultural Science (secretary-treasurer, 1947-57, vice president, 1958, and president, 1959). He was a member of the Society for Plant Physiology, the Genetics Society of America, and the Botanical Society of America. He was also Chairman of the Planning Committee for the Columbus Meetings of the American Institute of Biological Sciences, which were held at The Ohio State University in September, 1950. He became a member of Section B of The Ohio Academy of Science in 1925, and a fellow in 1941; he served as vice president of Section B in 1943 and 1944.

Dr. Howlett traveled extensively abroad, going first to the John Innes Horticultural Institute in London, England, in 1932, as the recipient of a National Research Council Fellowship, to study the flowering and fruiting of tomato under greenhouse conditions. In 1955, he was Visiting Lecturer in Yugoslavia, and gave lectures to institutions of agriculture in five Yugoslavian republics. In 1962 he was guest lecturer at the Slovakian Academy of Science in Czechoslovakia and at the Bulgarian Agricultural Academy of Science. In 1965, Dr. Howlett again went to Europe to present research papers on greenhouse culture at the National Farmers Union in London and to attend the International Society for Horticultural Science which was meeting at The Hague, Netherlands. In 1967 he served on a short-term consultantship with the OSU-USAID program in India.

Dr. Howlett was a conscientious, dedicated, productive scientist. He had a love for his work, and an enthusiasm for horticulture and for agriculture generally. He was an inspiration to undergraduates, graduate students, and faculty alike. He was also held in high esteem among the horticultural industries of Ohio, of the nation, and of the world. He will be remembered and he will be missed.

He is survived by his wife, Jean Waterbury Howlett, and a brother, Gordon Howlett, of Albion, N. Y.

Emerson Kemsies, Instructor of Ornithology and Conservation, and Curator of Ornithology of the University of Cincinnati, died at the age of 65 years, and was buried September 4, 1970. He was born in Cleveland, Ohio, on September 19, 1905, and remained unmarried. He received the A.B. degree from Oberlin College in 1930, and the M.A. from Western Reserve in 1937. He attained his current title in 1968, having served the University of Cincinnati unofficially in the same capacity since 1947.

Mr. Kemsies had been employed by the Federal Bureau of Naval Inspection and the Army Defense Contract Administration (Cincinnati) and had been attached to the Cleveland Museum of Natural History for several years. He was a ranger naturalist in Yellowstone National Park in 1929 and 1933, and published articles on the birds of that area.

Mr. Kemsies was a member of the Wilson Ornithological Society, the Cooper Ornithological Society, the Ornithological Union, the Ottawa Field-Naturalists Club, Sigma Xi, and Section A of The Ohio Academy of Science, which he joined in 1955, being elected fellow in 1961.

He was a nationally known ornithologist. Writer of many monographs and articles on birds, he was the author of a definitive monograph on Smith's Longspur and an article on this species in the *Bent Life History of American Birds*, published by the U.S. National Museum of Natural History.

Mr. Kemsies was especially interested in the taxonomy and distribution of the birds of Ohio, of the birds of Yellowstone National Park, and of the Arctic. Through him the University of Cincinnati-Museum of Natural History acquired the famous Brandt collection of hawk skins, in 1963.

Nathan L(izawetsky) Koslin, Director of the Nalin Laboratories, Columbus, Ohio, died March 10, 1970, aged 55 years. He was born January 20, 1915, in Akron, Ohio, and was married in 1943. He received the B.S. degree in 1937 in chemistry and mathematics from the University of Akron, and both the M.S. (in 1940) and the Ph.D. (in 1942) degrees in organic chemistry from The Ohio State University. His graduate work and research were in the fields of organic and inorganic, qualitative organic, and physiological chemistry.

Dr. Koslin received a grant from the Abbott Laboratories of Chicago which he used during his graduate work at Ohio State; he was chemist in the Testing Laboratory of the University of Akron during 1935-41, and resident chemist with the Wyandotte Chemicals Corporation, Wyandotte, Michigan during 1943-45. He taught organic chemistry in the evening sessions at Wayne State University, Detroit, Michigan, during 1943-44.

Since 1945 he headed his own chemical enterprise, the Nalin Laboratories of Columbus, Ohio. His research here was in industrial synthetic organic chemistry and in synthesis of intermediates for the manufacture of allyl alcohol plastics. During World War II, Mr. Koslin had a contract under the Chemical Warfare Service to study mildew-proofing agents. His later fields of interest included metal finishing, water- and waste-control treatment, fertilizers, and feeds.

Dr. Koslin held memberships in the American Association for the Advancement of Science, Sigma Xi, the Society of Testing and Materials, The Electroplaters Society, and Section G of The Ohio Academy of Science, which he joined in 1964. He was a member of Phi Lambda Upsilon, National Honorary Society for Chemistry, and is listed in *American Men of Science*.

Dr. Koslin is survived by his wife, Hannah R. Polster Koslin, and two sons, Mark E. and D. Bradley Koslin.

Walter C(harles) Kraatz, Professor Emeritus of Biology, University of Akron, Ohio, died November 15, 1970, aged 77 years. He was born in Milwaukee, Wisconsin, on January 20, 1893, and was married in 1923. He received the A.B. degree from the University of Wisconsin in 1918, and both the M.A. (in 1920) and Ph.D. (in 1923) degrees in zoology from The Ohio State University. He received an honorary Doctor of Science degree from the University of Akron in 1966.

Mr. Kraatz was assistant in anthropology at the Milwaukee Public Museum during 1912-14, assistant in zoology at the University of Wisconsin during 1916-1918, and was first assistant

(during 1918–22) and then instructor (during 1922–23) at The Ohio State University. He went to Miami University, Oxford, Ohio, as assistant professor during 1923–24, and then to the University of Akron as assistant professor of biology during 1924–28, changing to zoology during 1928–31. He became associate professor at the University of Akron in 1931, Professor of Biology and Head of the Department in 1934, and Professor Emeritus in 1958.

Dr. Kraatz was a member of the American Association for the Advancement of Science, the American Society of Zoology, the Society of Limnology and Oceanography, and the Society for the Study of Evolution. He joined Section A of The Ohio Academy of Science in 1920, and was elected fellow in 1923; he served as vice president of Section A in both 1933 and 1953, and president of the Academy in 1957. He was made an Honorary Life Member in 1970. He was an active member of Phi Sigma and Sigma Xi.

Dr. Kraatz' fields of interest included aquatic biology, food of fishes, morphology of fish intestines, and plankton. He was also interested in the broad aspects of zoology, entomology, and botany.

He was an outstanding teacher, one who could stimulate his students through his own research, sharing the results by publication in professional journals, and by constant emphasis on the value of study in relation to future success in one's chosen field. During his career he inspired more than 150 pre-medical students to attain graduate degrees in medicine. Many of these have since distinguished themselves in medicine, surgery, and research. His love of learning, devotion to teaching, and exacting standards led his students into putting forth their best efforts.

Dr. Kraatz is survived by his wife, Julia J. Kraatz, and two sons, Charles H. and Earnest E. Kraatz.

Jackson Lynn, Research Biochemist at The Battelle Memorial Institute, died August 20, 1970, aged 33 years. He was born in Saigon, Viet Nam, on October 12, 1937, and was married September 14, 1963. He received the B.S. degree from Seattle Pacific College in 1961, the M.S. from the University of Washington in 1963, and the Ph.D. in biochemistry from Oregon State University in 1966. After post-doctoral studies at Brandeis University, he came to Battelle Institute as Research Biochemist in 1968.

Dr. Lynn's research interests at Battelle included the preparation, stabilization, and characterization of photosynthetic enzymes; the development of a microcapsule artificial kidney; and the uses of enzyme therapy for enzyme-deficiency diseases.

He joined Section G of The Ohio Academy of Science in 1969.

Dr. Lynn is survived by his wife, Hannah Lynn.

William A(sbury) Manuel, Professor Emeritus of Chemistry at Ohio Wesleyan University, died August 12, 1970, aged 79 years. He was born in Freetown, Indiana, on January 18, 1891, and was married in 1919. He received the A.B. degree from DePauw University in 1912, the M.S. from the University of Illinois in 1915, and the D.Sc. from the Colorado School of Mines in 1928.

While working for his bachelor's degree, Dr. Manuel was senior assistant in mathematics at DePauw University during 1911–12, and assistant principal of a high school in Bicknell, Indiana, during 1912–13. He was assistant in chemistry while working for his master's degree at the University of Illinois, 1913–15, and then became instructor at Northwestern University in 1915. He was Ranch Secretary at the Trinchera Ranch Company, Colorado during 1917–21, and was then professor of chemistry first at the Colorado State Normal School during 1921–23, then at Western State College of Colorado during 1923–29, and finally at Ohio Wesleyan University during 1929–59. He became Head of the Department of Chemistry at Ohio Wesleyan in 1939 and Professor Emeritus in 1959.

Dr. Manuel was a member and fellow of the American Association for the Advancement of Science, member of the American Chemical Society and Chairman of the Columbus Section during 1941–42, and member of Section G of The Ohio Academy of Science, which he joined in 1932. He was elected fellow of the Academy in 1936, and was vice president of Section G in 1942. He was Director of the Visiting Scientists Program of the Academy during 1950–66, and was made an Honorary Life Member of that organization.

Dr. Manuel is the author of several scientific papers. For many years he served as consulting chemist for industries and foundations and in 1939–40 he was research chemist at the Institute of Paper Chemistry at Appleton, Wisconsin. His research interests included analytical survey of the coal deposits of Colorado, and methods for testing protective zinc coatings.

Dr. Manuel has served Ohio Wesleyan as president of its chapter of Phi Beta Kappa, member of the Athletic Board, and Chairman of both the Exhibitions Committee of the Science Division and of the Building Committee. He is listed in *Who's Who in America*, *Who's Who in American Education*, and *American Men of Science*. He was a member of Phi Gamma Delta, Phi Beta Kappa, and Sigma Xi.

Dr. Manuel was known as an outstanding teacher of chemistry at the undergraduate level. Many of his pre-medical students were admitted into teaching colleges because they had studied with Dr. Manuel. During his retirement he was active in church and community affairs, and for Phi Gamma Delta.

Dr. Manuel is survived by his wife, Lola, and two daughters, Mrs. Robert E. Wyant and Mrs. Alton G. Way.

David W(ilson) Montgomery, Microscopist with the B. F. Goodrich Company, Avon Lake, Ohio, died May 19, 1970. He was born in Indianapolis, Indiana, on March 13, 1920, and was married on September 1, 1947. He received the B. Sc. degree in Chemical Engineering from Purdue University in 1947.

He was First Lieutenant in the United States Air Force during World War II.

Mr. Montgomery was president of the Board of Trustees of the Avon Lake Public Library during 1967-1970. He was a member of the Electron Microscopic Society, both local and national, of the Chemical Engineering Society of America, and of Section G of The Ohio Academy of Science, which he joined in 1961.

He is survived by his wife, Elayne Kathryn Montgomery.

H(enry) Russel Moore, Associate Professor Emeritus of Agricultural Economics, The Ohio State University, died December 31, 1969, aged 77 years. He was born on October 8, 1892, at Frazeysburg, Ohio, and was married June 27, 1919. He received the B.S. and M.S. degrees from The Ohio State University in 1926 and 1929, respectively. In addition, he did graduate work in land economics with Professor Robert Ely at Northwestern University during 1931-32.

Mr. Moore became instructor of Agricultural Economics at the Ohio Experiment Station in 1926, and advanced through the rank of assistant professor to associate professor, becoming Associate Professor Emeritus on February 28, 1960. He was Farm Management Specialist with the U.S. Farm Security Administration during 1940-41.

Professor Moore had the unique distinction of being on the staff of the Ohio Agricultural Experiment Station, later called the Ohio Agricultural Research and Development Center, but doing his work, throughout the years, on the campus of The Ohio State University.

His fields of interest were land and water, and economics and conservation; his counsel in these areas was widely sought. He worked on the problem of taxation as related to property and income of Ohio farming. His research of farm-leasing procedure, family farming arrangements and family farm transfers, together with his recent research in the area of rural zoning gave him the distinction of being a specialist in each of these fields in Ohio.

He joined Section J of The Ohio Academy of Science in 1952 and was elected fellow in 1959.

Mr. Moore is survived by his wife, Elizabeth Minieer Moore, and a son, Wayne Russel Moore.

Claude E(dgar) O'Neal, Professor Emeritus of Botany at Ohio Wesleyan University, died February 8, 1971, aged 87 years. He was born in Coatsville, Indiana, on January 29, 1884, and was married in 1913. He received the A.B. degree from the University of Indiana in 1911, was a teaching fellow during 1912-13, while working for the M.A. degree, which he received in 1913. He received the Ph.D. degree in botany from the same institution in 1922.

He became instructor of botany at Ohio Wesleyan University in 1913, assistant professor in 1914, associate professor in 1917, and Professor and Head of the Department in 1922, until he became Professor Emeritus in 1954. In addition, he returned to teach one term during 1957-58.

Dr. O'Neal was a member of the American Association for the Advancement of Science, The Botanical Society of America, and Section B of The Ohio Academy of Science, which he joined in 1919. He was early elected fellow, was made vice president of Section B in 1937, and was elected president of the Academy in 1938. He was made an Honorary Life Member in 1967.

His special interests included the cytology of *Datura*, the embryological development in *Oenothera*, and the systematic study of the genus *Nummularia* (which is found in India). He was a member of Phi Beta Kappa, Sigma Xi, and Omicron Delta Kappa (honorary). The O'Neal Greenhouse at Ohio Wesleyan is named for him.

Dr. O'Neal is survived by his wife, Mabel, a son, William B. O'Neal, and a daughter, Anna Josephine (Mrs. Paul V. Wallace).

Paul W(ilhelm) K(arl) Rothemund, Chemist and Registered Professional Chemical Engineer in Ohio (No. 9448) and in Illinois (No. 19356), and President, Rothemund and Associates since, 1960, died October 7, 1970, aged 65 years. He was born in Augsburg, Germany, on January 13, 1904, and was married in 1936.

He was a citizen of the German Federal Republic (West Germany), came to the United States in December, 1930, and was admitted as permanent resident by visum for scientists in August, 1931.

He held a Diploma of Engineering (Chemical), obtained in 1927, and the degree of Doctor of Engineering (Chemical), obtained in 1930, both degrees being conferred by the Technische Hochschule, Munich, Germany. His dissertation on Mesoporphyrin VI and Related Compounds was prepared under Professor Hans Fischer, Nobel Laureate, 1930. Dr. Rothemund was Visiting Scientist in the summer of 1932 at the Photosynthesis Laboratory of the University of Liverpool, England, which was then directed by Professor E. C. C. Baly.

During August and September of 1948, he visited the Oak Ridge Institute for Nuclear Studies, Oak Ridge, Tennessee. In the summer of 1952, he took courses in Infrared Spectrography at the Massachusetts Institute of Technology, Cambridge, Massachusetts. During the following summer (1953), he attended the X-ray Diffraction School of the General Electric Company, Milwaukee, Wisconsin.

He spent the period of 1927-30 teaching and doing research at the Technische Hochschule, Munich, Germany. In 1930, he became assistant professor of biochemistry at Antioch College, Yellow Springs, Ohio; in 1937, he became associate professor, and he was a full professor during

1947-54. He was guest professor and Head of the Chemistry Department at Muskingum College, New Concord, Ohio, during 1955-56, and held the same position at Kenyon College, Gambier, Ohio, during 1956-57. From 1937 to 1960 he was non-resident Associate Professor of Chemistry in the Graduate School and Graduate Center of The Ohio State University at the U.S. Air Force Institute of Technology, Wright-Patterson Air Force Base, Dayton. From 1966 to 1970, he was Associate Professor and Head of the Chemistry Department at the Lima Branch of The Ohio State University.

Dr. Rothemund's memberships include the American Association for the Advancement of Science, of which he was a fellow; the American Chemical Society, of which he was past chairman and past councillor of the Dayton, Ohio, Section; the American Society of Biological Chemists, Inc.; American Physical Society, Ohio Section; and Section G of The Ohio Academy of Science, which he joined in 1933, and was made a fellow in 1936, vice president of Section G in both 1940 and 1946, and president of the Academy in 1955. He was a Visiting Science Lecturer for the Academy in 1962.

Dr. Rothemund also held memberships in the German and Swiss Chemical Societies. He was a member of Sigma Xi, and a member of the committee on Biochemical Nomenclature of the National Research Council during 1944-45.

Dr. Rothemund was moderator for Sunday Afternoon Public Service Broadcasts over Radio Station WAVI, Springfield, Ohio, for one summer. Lately he prepared a report, requested by Mr. Charles F. Kurfess and the Joint Legislative Committee, on campus unrest, a paper to show the conditions as they existed on the Branch Campuses of The Ohio State University.

Dr. Rothemund's fields of study included chemistry of organic compounds, especially dyes, chlorophyll, hemins, porphyrins, and vitamins; chromatography; photosynthesis; photosensitization; biochemistry; and microchemistry. Being a native German, with a knowledge of German shorthand, Dr. Rothemund had also studied French for six years, Italian for three years, Spanish for two years, Russian for two semesters, and Greek for one semester; his language background also included nine years' study of Latin.

Dr. Rothemund was research chemist and head of the biochemical laboratory of the Charles F. Kettering Foundation for the study of chlorophyll and photosynthesis during 1930-54. During 1951-54, he was also special microchemical consultant on the subject of the contamination of the Ohio River for the U.S. Department of Health, Education and Welfare, U.S. Public Health Service, Cincinnati, Ohio. During 1957-60, he was consultant to the Cosmetics Division, the Proctor and Gamble Company, Cincinnati, Ohio, and the National Cash Register Company, Dayton, Ohio, on the subject of micro-encapsulation and related phenomena.

During 1961-62, he was visiting scientist dealing with organic lithium and silicon compounds for the Office of Aerospace Research, Aeronautical Research Laboratory, U.S. Air Force Base, Wright-Patterson Field, Dayton, Ohio, through The Ohio State University Research Foundation. During 1963-64, he was biochemist with the Aquatic Biology Section, U.S. Department of Health, Education and Welfare, U.S. Public Health Service, Cincinnati, Ohio, where he investigated the toxic substances in the Ohio and Mississippi Rivers and determined the chemical identity of a new algicidal compound, produced by algae. Following this, he spent the period of 1964-66 as chemist with Taft Sanitary Engineering Research Center, Cincinnati, Ohio.

Dr. Rothemund is survived by his wife, Dr. Geneva L. Shong Rothemund, a son, Dr. Max Rothemund, a daughter, Louise (Mrs. Clarence Hanold), and two grandchildren.

Karl A(twood) Shumaker, Mechanical Engineer at the Battelle Memorial Institute, died March 6, 1971, aged 60 years. He was born at La Grange, Illinois, on May 20, 1910, and was married August 1, 1943. He received the B.Sc. degree in Education, with majors in general and physical sciences, from The Ohio State University in 1939, and the M.Sc. in Psychology in 1940 from the same institution.

He joined the staff of Battelle Memorial Institute, in the Department of Metallurgy, in 1941, changing to Mechanical Engineering in 1949. At the time of his death he was responsible for much of the operation of Building 9, an assignment he had held since the completion of that building in 1957.

At Battelle, Mr. Shumaker was known as a meticulous craftsman and an exceptionally talented pattern maker and wood carver. His unique talents and willingness to "pitch in" earned the respect of others for him and won for him the cooperation of all with whom he had any dealings.

Mr. Shumaker became a member of Section I of The Ohio Academy of Science in 1963, and was elected fellow in 1968. He was an active and highly contributive member of the Junior Academy, being chairman of the judging panel for the Academy-sponsored State Science Day, an event which fosters the exhibition of science projects of high school students.

Mr. Shumaker was commended by the Senior Academy for his loyal and many times arduous service in preparation for the State Science Day judging, for the smooth execution of the judging, and for its completion in record time. With as many as 600 projects to be evaluated, it was often necessary to recruit over 200 competent scientists to help with the evaluating. On judging day these teachers, college professors, engineers, doctors, technicians, and laymen were always efficiently organized to complete the judging by noon; the awards were then given in the early afternoon. Mr. Shumaker soon recognized the need of precise criteria in the preparation and evaluation of the exhibits. He devised a manual, *The Standards Handbook*, to meet this need.

Every high school in Ohio now has a copy of the manual and it is available to students and teachers as well as to judges. Mr. Shumaker announced his retirement as judge master early in 1971. His years of accomplishment will surely serve to train his successor in this work.

Mr. Shumaker also had a rich association with the scientists and their problems at the Ohio State Museum and later at the Ohio Historical Center. He was deeply interested in the prehistory of the state and visited the archeological excavations of the Historical Society, often with his daughter, Karen. He delighted in the internal arrangements and artifacts found in the mounds and village sites being excavated, and in the publications in which they were described. With Karen, he often made models of what the structures must have been, judging from the position of the post holes and other data. He gave valuable assistance in the maintenance of special equipment used in the excavations.

During 1954-55 the historians of the Historical Society were studying the model steam engine credited to John Fitch, circa 1796. They were aided in this project by Mr. Shumaker, who studied the model, part by part, measuring the three dimensions of each part, noting the material from which it was formed, and just how it could have been made by hand at that early time. He recognized and removed extraneous parts which had been added later by others. The original ones he straightened and assembled, supplying the few which had been lost or were badly damaged, so that the model stands today as it did when completed by its maker. In his typed report, which is in the custody of Mr. William G. Keener at the Historical Center, Mr. Shumaker acknowledges the assistance of many other specialists in the project and states that well over 200 references on John Fitch, steam engine history, wood and metal carving, and machine practice in early America, were consulted. The little engine in the Ohio Historical Center is a monument to the sagacious efforts of Mr. Shumaker, as well as to those of Mr. Fitch.

Mr. Shumaker gave further assistance to the Historical Society in the restoration of the surface of a pewter tankard originally made in Albany by one Peter Young. He also devised criteria for judging the authenticity of hand-made silver medals used in Revolutionary times.

Mr. Shumaker was regarded by scientists both at the Historical Center and at Battelle Institute as a sensitive, generous, and able man, one who knew what to do and when to stop—or who knew what he should find out about the matter. In recognition of his many services at the Historical Center, he was made an Honorary Life Member of The Ohio Historical Society in 1956.

Mr. Shumaker is survived by his wife, Madlyn Bewig Shumaker, and two daughters, Kristen (Mrs. William Schwerin) and Karen.

Grace Anne Stewart, Professor Emeritus of Geology, The Ohio State University, died October 15, 1970, aged 77 years. She was born in Minnedosa, Manitoba, Canada, on August 4, 1893, and was a naturalized citizen of the United States.

She received the A.B. degree from the University of Alberta in 1918, and the M.A., in 1920, from the same institution. She held a fellowship at the University of Chicago during 1921-22, and received the Ph.D. *Cum laude* in 1922.

Dr. Stewart held appointments with the Research Council of Alberta and the Geological Survey of Canada, and then came to The Ohio State University in 1923 as instructor in geology. Here she advanced to assistant professor of geology in 1928, to associate professor in 1937, and to full professor in 1946, becoming Professor Emeritus in 1954.

Dr. Stewart was Geographer in the Office of Strategic Services during 1944-45, and Paleontologist with the Strategic Service of Canada Ltd., Alta, Canada, during 1956-58.

Dr. Stewart's research dealt mainly with invertebrate paleontology, Devonian corals, ostracodes and conodonts, and Silurian and Devonian foraminifera. The results of these efforts are presented in more than two dozen papers published mainly in the Bulletin of the Geological Society of America, the Journal of Paleontology, and in The Ohio Journal of Science. Her larger works are *The Fauna of the Silica Shale of Lucas County*, published by the Ohio Geological Survey in 1927, and *Middle Devonian Corals of Ohio*, a special paper of the Geological Society of America, published in 1938.

Dr. Stewart was a member of Sigma Xi, the Geological Society of America, and member and fellow of the Paleontological Society. She joined Section C of The Ohio Academy of Science in 1925, was elected fellow in 1927, and was vice president of Section C in 1936.

Dr. Stewart will be remembered as one of a band of pioneer women who refused to be deterred from qualifying as a geologist because it seemed to be a masculine preserve. She attained a leading position in the profession by quiet but persistent effort, the production of professional work, and her willingness to do a man's work in the field when it was required.

As a teacher she was methodical and thorough, patient and helpful. She stood before the wonders of historical geology and led her students, both undergraduate and graduate, to share in the view.

Dr. Stewart's field experience included seven summers, those of 1924 through 1930, with the Geological Survey of Ohio. She attended the Geological Congress in England in 1948, and meetings of the American Association of Petroleum Geologists, in 1950 and 1951. She took a cruise from Vancouver to Skagway in the summer of 1950 and spent the summer of 1953 in the Canadian west. In 1954 she visited Toronto, attended meetings of the Geological Society of America, and then went west for a time.

Dr. Stewart was included in *American men of Science*, Eleventh Edition (and preceding), and in *Who's Who of American women*.

Charles B(lount) Vance, Professor Emeritus of Physics, Rio Grande College, since 1958, died March 11, 1970, aged 85 years. He was born in Hillsboro, Ohio, on May 31, 1885, and he was married December 24, 1917. He received the B.Sc. degree from Denison University in 1912, the M.Sc. from The Ohio State University in 1923, and the Ph.D. in Physics from the University of Indiana in 1931.

He taught physics and chemistry in the high schools of Illinois and Ohio until 1924, when he became professor of physics and chemistry at Rio Grande College until 1929. Following this, he was professor of mathematics at Stetson College in 1930, of physics during 1931-32, of biology during 1932-35, and of geology and geography during 1935-42. He became professor of physics and Head of the Department of Physics and Mathematics at Evansville College during 1942-45, and then became professor of physics and geology at Adrian College, a position held during 1947-52. He became Professor of Physics and Head of the Science Division at Rio Grande College in 1952 and held these positions until his retirement in 1958. He was especially interested in ultrasonics.

Dr. Vance was a member of the American Association for the Advancement of Science, the Association of Physics Teachers, and Section E of The Ohio Academy of Science, which he joined in 1953. Dr. Vance was elected to the Indiana Chapter of Sigma Xi, to Sigma Pi Sigma at Stetson College, and to a position as honorary alumni member of the Denison Chapter of the American Commons Club. He was a fifty-year member of the Masonic Lodge at Hillsboro, Ohio.

Dr. Vance is survived by his wife, Alma Vannorsdall Vance, and a son, James L. Vance.

Simon J(ohn) Vallenga, Professor Emeritus of Chemistry, Muskingum College, died August 3, 1970, aged 65 years. He was born in Friesland, Wisconsin, on August 16, 1905, and was married in 1934. He received the B.S. degree from Monmouth College in 1927, the M.S. from The Ohio State University in 1936, and the Ph.D. in chemistry in 1943 from the same university.

He was professor of chemistry at Assiut College, Egypt, during 1927-32, instructor of chemistry and physics in the high school at Bellefontaine, Ohio, during 1934-41; and then instructor of physics and physical chemistry at Capital University during 1941-43. He was professor of chemistry at Tarkio, Colorado, during 1943-49, at Monmouth College during 1949-56, and Professor of Chemistry and Chairman of the Department of Chemistry and of the Division of Natural Science and Mathematics at Muskingum College during 1956-66. He was also lecturer for the Oak Ridge (Tennessee) Institute of Nuclear Studies Mobile Laboratory on the use of radioisotopes in chemistry and biology.

Dr. Vallenga's primary interest in teaching was in the fields of general and physical chemistry. His research was in electrical conductivity of aqueous and non-aqueous solutions and solution of metal oxides in alkali.

Dr. Vallenga was member and fellow of the American Association for the Advancement of Science, the American Institute of Chemists, and of Section G of The Ohio Academy of Science, which he joined in 1958, and in which he was elected a fellow in 1960. He was a member of the American Chemical Society, Division of Chemical Education, and the American Society of Metals. He was elected to Sigma Xi, Phi Lambda Epsilon, Alpha Epsilon Delta and Tau Kappa Epsilon (social). He was a member of the Curriculum Committee and of the Examinations Committee of the Division of Chemical Education of the American Chemical Society. He was also sometime member of the panel of the National Science Foundation which evaluates applications for grants of equipment.

Dr. Vallenga is survived by his wife, Alice, two daughters, Doris Dee and Joanna (Mrs. John Karnes), and one son, David.

Roy Bertram Weed, retired Consulting Geologist of Columbus, Ohio, died August 28, 1970, aged 78 years. He was born in Marion, Indiana, on June 30, 1892, and was married on October, 27, 1921. He received the B.A. degree in geology from The Ohio State University in 1927.

Mr. Weed was on the Board of Directors of the Independent Petroleum Association of America and was a former trustee of the Ohio Gas Association. He was a member of Section C of The Ohio Academy of Science, from 1929, becoming Emeritus in 1968.

Mr. Weed was past member of the Franklin County Metropolitan Park Board and director of the Ohio Post-War Program Commission. He was chairman of the Community Fund Campaign of Franklin County in 1950. He was Columbus Safety Director during 1940-44 under Mayor Floyd Green, trustee and former president of the Columbus Automobile Club, and past president of the downtown Lions Club. He was also a member of Community Lodge F, and AM 684, Scottish Rite and Aladdin Temple. He was active in community affairs and in Republican politics. Mr. Weed was a veteran of World War I and retained membership in the Upper Arlington Post of The American Legion.

He is survived by his wife, Claire Sweney Weed, a son, Thurlow Weed, and two grandsons.

William H(enry) Wood, research chemist, consultant and inventor, died October 24, 1970, aged 65 years. He was born in Granby, Missouri, on August 23, 1905, and was married in 1932. He received the B.Sc. degree in 1929 and the M.A. degree in 1930, both from the University of Missouri and both in chemistry and physics.

Mr. Wood was research chemist for Phillips Petroleum Corporation of Oklahoma during 1931-36, director of research for the Harris Seybold Company during 1936-54, and research and experimental engineer during 1955-56. He was consultant for the Mergenthaler Linotype

Company during 1956-59, for the Texas Instrument Corporation during 1959-60, for the International Resistance Company in 1960, for the Westinghouse Electric Corporation during 1960-67, for the Owens-Illinois Corporation during 1960-65, for the Champion Paper Company in 1961, and for the Clevite Piezoelectric Division during 1966-67. Mr. Wood's work record with all the above corporations is most impressive.

He was a civilian with the U.S.A.-U.S.N. in 1944, and held security clearance with the Bureau of Weapons, U.S. Navy—in "Secret" status.

Mr. Wood was a member of the American Association for the Advancement of Science, the American Chemical Society, the Society of Motion Picture and Television Engineers, the Technical Association of the Graphic Arts, the Photography Society of America, the Electrochemical Society, the Cleveland Engineering Society, the Advisory Research Committee, the Graphic Arts Technical Foundation, and Section G of The Ohio Academy of Science, which he joined in 1961.

Mr. Wood's wide range of interests included photography, high-molecular-weight polymers, photomechanics, semiconductor processes and products, and molecular electronics. His biography appears in *American Men of Science* 1938, and after, in *Who Knows and What*, in *Leaders in American Science* and *Who's Who in the Midwest*.

He is survived by his wife and perhaps by their four children.

Submitted by the Necrology Committee

R. M. MAHARD

R. H. BOND

LOIS LAMPE, *Chairman*